NOAA Teacher at Sea
Karen Meyers & Alexa Carey
Onboard NOAA Ship ALBATROSS IV
August 14 – September 1, 2006

NOAA Teacher at Sea: Karen Meyers
NOAA Ship ALBATROSS IV
Mission: Eco-Monitoring
Day 13, August 26, 2006
Gulf of Maine

Weather Data from Bridge
Visibility: 12 nautical miles
Wind direction: 3 °
Wind speed: 16 kts
Sea wave height: 1-2 ’
Swell wave height: 2 1/2’
Seawater temperature: 15.5 C
Sea Level Pressure: 1024 mb
Cloud cover: 1/8

Science and Technology Log
Today we sampled at the deepest station of the trip – 350 m. We had to do what they call a “double dipper” because the bongos are never lowered any deeper than 200 m since pretty much any organisms of interest to Fisheries are with 200 m of the surface. But the CTD is still lowered all the way to within 5-10 m of the bottom in order to get a complete hydrographic profile.

Karla Heidelberg is engaged in real cutting edge research in microbial genetics. Now at the University of Southern California, she has worked with the J. Craig Venter Institute which is in the midst of an ambitious program to provide a genomic survey of microbial life in the world’s oceans. This survey is producing the largest gene catalogue ever assembled and will provide scientists worldwide with an opportunity to better understand how ecosystems function and to discover new genes of ecological importance. The survey is based on collections made during a circumnavigation of the globe by the sailing yacht *Sorcerer II* between September 2003, and January 2006. But this expedition didn’t allow for sampling of the same areas over time. So, with the help of an NSF grant and NOAA ship time, Karla is sampling and resampling areas in the Gulf of Maine. When she takes samples, she pumps 200-400 L of water on board and filters it through a series of filters, first to eliminate the zooplankton and phytoplankton, and then to separate the various components of the microbial community. The filters are frozen while on board ship and then, back in the lab, they’re subjected to an enzyme treatment to remove everything but the DNA. The DNA is then nebulized to break it into small fragments and the fragments are cloned. The fragments are reassembled and sequenced. As poorly understood as the ocean in general is, the microbial life of the ocean is a true frontier!

Personal Log – Karen Meyers
I love sitting out on one of the decks gazing at the sea. Of course, I'm always hoping to see a whale or a Giant Ocean Sunfish but even though I've been pretty unsuccessful at spotting anything, I find it very calming to watch the ocean. I'm amazed when I look at it that there are painters who are skillful enough to recreate the complex patterns on a canvas.

Personal Log – Alexa Carey
Well our shift worked extremely hard today, hard enough that we all fell asleep within 10 minutes of a post-shift movie. We got hit with station after station during our 12 hour period. It's fascinating, though, to be looking at the organisms that come up in the grab or bongo nets. I'm not very familiar with the different scientific classifications of animals, but I certainly have an appreciation for what the ocean holds. As Karla said, we're seeing what 1% of the Earth has ever seen before. We're truly in undiscovered territory.

Like the rainforest, there are many species that have yet to be discovered. At ISEF, my father and I went to an IMAX theatre to watch Deep Blue Sea in 3D. The VPR (Video Plankton Recorder) showed images just like what we saw on the big screen.

I live on the coast, yet I had no idea what was in the ocean. In fact, people come from all over to whale watch in Gold Beach. Yet I have never seen a whale, nor have I seen a dolphin.

I go home in six days and head back to school in eight. I'm getting pretty fond of being out here now, and the idea of sitting in a classroom reading from textbooks isn't as appealing. I do miss discussions with my teachers (i.e. Ms. Anthony (Calculus); Coach Swift (American Gov't); Mr. Lee (Honors English II)) though. Anyway, we're coming on shift now. So I'd best be off to work.